

CLAIMS:

1. A casing for an energy storage device, comprising:
 - a) a structural shell defining a void area suitable for containing an energy storage device, said structural shell having an outer surface and an inner surface; and
 - b) an inner lining substantially impervious to oxygen and humidity, said inner lining including at least one layer of synthetic material joined onto said inner surface of said structural shell.
2. A casing as defined in claim 1, wherein said inner lining comprises a laminate of at least two layers of materials.
3. A casing as defined in claim 2, wherein said laminate comprises at least two layers of synthetic materials.
4. A casing as defined in claim 2, wherein said laminate comprises a layer of synthetic material and a layer of metallic material.
5. A casing as defined in claim 1, wherein said structural shell is made of reinforced plastic or polymer material.
6. A casing as defined in claim 5, wherein said structural shell is made of a molded plastic or polymer material reinforced with a series of ribs extending over said outer surface of said structural shell.
7. A casing as defined in claim 5, wherein said structural shell is made of a molded plastic or polymer material reinforced with carbon or glass additives.

8. A casing as defined in claim 5, wherein said structural shell is made of a molded plastic or polymer material reinforced with a plurality of discrete metallic portions.
- 5 9. A casing as defined in claim 8, wherein said plurality of discrete metallic portions and said plastic material are molded together.
10. A casing as defined in claim 8, wherein said plurality of discrete metallic portions are embedded in said plastic material.
- 10 11. A casing as defined in claim 8, wherein said plurality of discrete metallic portions are mated to said plastic material by a plurality of fasteners, each fastener including a recess formed on one of said discrete metallic portion and said plastic material and a mating projection formed on the other of
15 said discrete metallic portion and said plastic material.
12. A casing as defined in claim 11, wherein the recess of each fastener is defined by a perforation in one of said discrete metallic portions, the mating projection of each fastener being formed by said plastic material filling at
20 least in part the perforation.
13. A casing as defined in claim 12, wherein the mating projection of each fastener has an enlarged head to prevent separation of the mating projection and the corresponding recess of the fastener.
- 25 14. A casing as defined in claim 1, wherein said structural shell includes an aperture opening into said void area for receiving the energy storage device, said casing further comprising an end cover mounted to said structural shell and closing said aperture.
- 30 15. A casing as defined in claim 14, wherein said end cover is affixed to said structural shell by a welding operation selected from the group consisting

of vibration welding, induction welding, ultrasonic welding, and laser welding.

- 5 16. A casing as defined in claim 14, wherein said end cover includes at least one electrical connector for connecting the energy storage device inside said casing to a remote device.
- 10 17. A casing as defined in claim 14, wherein said end cover includes a reinforcement metallic portion lined at least in part with a synthetic material.
- 15 18. A casing as defined in claim 1 wherein said structural shell is made of a material selected from the group consisting of polybutylene theraphthalate (PBT), polyethylene, polyethylene theraphthalate (PET) polyamide, polypropylene, polyvinyl chloride (PVC) and acrylonitrile butadiene styrene (ABS), combinations thereof, and PolyPhenylene Ether and Polystyrene blend (PPE+PS).
- 20 19. A casing as defined in claim 1, wherein said structural shell is made of thermoset material selected from the group consisting of epoxy and urethane or combinations thereof.
- 25 20. An energy storage device comprising the casing defined in claim 1.
21. A method of manufacturing a casing for an energy storage device, said method comprising:
a)providing an inner lining onto an inner core portion of a mold;
b)closing the mold and injecting a plastic material into the mold to form a shell;
wherein said inner lining adheres and conforms to an inner surface of the
30 shell.

22. A method of manufacturing a casing as defined in claim 21, further comprising the step of providing discrete reinforcement metallic portions into the mold prior to closing the mold, whereby upon injecting a plastic material into the mold to form a shell, said discrete reinforcement metallic portions are anchored to the shell .

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23. A method of manufacturing a casing as defined in claim 21, wherein said inner lining comprises a laminate sheet which is formed like a paper bag prior to being positioned over the inner core of the mold.

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